MULTI-PRODUCT DIAGNOSTICS
TECHNICAL PROCEDURES

TABLE OF CONTENTS

Section 1 - Apple II Peripherals Diskette

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Technical Procedures

Section 1

Apple II Peripherals Diskette

Contents:

Introduction

The Apple II Peripherals Diskette contains a series of functional tests for the Apple II monitors and printers and a diagnostic test for the Apple II Memory Expansion Card.

The tests may be run on any of the following computers: Apple II, II Plus, IIe, and IIc. You may also run the tests on the Apple /// if, prior to installing the Peripherals Diskette, you boot the Apple II Emulation program.

Exceptions:

1. The Memory Expansion Card test cannot be run on the ///.

2. The Dot Matrix Printer test cannot be run on the IIc.

3. The Silentype test cannot be run on the IIc or ///.

This section contains instructions for running the monitor and printer tests of the Peripherals Diskette. Instructions for the use of the Memory Expansion Card test are found in the Memory Expansion Card section of the **Apple IIe Technical Procedures.**

Use of the Peripherals Diskette is very simple. For the functional tests, the user observes the results of the test (the output on the screen or printer paper) and decides for himself if the device is functioning properly. For specific information on an acceptable level of functioning for the device (and its repair or adjustment) see the appropriate Technical Procedures.

Materials Needed

Apple II Peripherals Diskette
Apple II, II Plus, IIe, or IIc computer
Monitor
Printer to be tested (optional):
   ImageWriter
   ImageWriter 15
   ImageWriter II
   Daisy Wheel Printer
   Dot Matrix Printer
   Scribe
   Silentype

Main Menu

Set up the selected computer, monitor, and printer
(optional). Install the Apple II Peripherals Diskette into
the computer's disk drive and turn on the computer and the
peripheral(s). The main menu will appear:

1.   **Monitors**

2.   **Printers**

3.   **Apple II Memory Expansion Card**

Type the number of the test classification you want. If you
press <ESC> you will exit the program.

Monitor Tests

When you select the monitor tests from the main menu, six
test pattern options (plus "Test All") will appear. Type the
number of the test pattern you wish to view. If you are a
first-time user of the diskette, it is handy to use "Test
All" first so that you can view all the test pattern options.
Each pattern will remain on the screen until you do one of
the following:

Press the spacebar   (for "Accept," or "Pass")

Type "X"   (for "Reject," or "Fail")

Press <ESC>   (to return to the monitor menu)

NOTE: On individual tests, you are returned to the monitor
menu after you indicate a "Pass" or "Fail." (If you selected
"Test All", the next test pattern will be displayed
automatically.)

The results of the testing are indicated on the monitor menu.

The judging of test results is purely subjective.

The Pass/Fail selection is provided so that you may keep
track of the results of each test as you go along.

The Monitor Test options are as follows:

0. Test All   —   Displays all six monitor tests in sequence below.

1. Dot Pattern   —   Shows a 20x28 column dot pattern crossed by two diagonal lines (corner to corner).

                                   This test can be used to indicate whether yoke and ring alignment are correct.

2. Grid Pattern   —   Shows a grid of 11 vertical lines intersected by 11 horizontal lines

                                   This test can be used to indicate correct yoke and ring alignment.

3. 40-Column Display   —   Shows text display of 23 lines of 40 characters each.

                                   This test can be used to test character generation and vertical and horizontal size.

4. 80-Column Display   —   Shows text display of 23 lines of 80 characters each.

                                   This test can also be used to test character generation and vertical and horizontal size. **This test is accessible only if there is an 80-column card installed.**

5. Color Bars   —   Shows vertical color bars with the name of each color below.

                                   This test can be used to adjust the color of color monitors. (The test pattern colors do not show on monochrome monitors, of course.)

6. Full White Screen   —   Shows a full white screen.

                                   This test can be used to check for white balance (a color adjustment).

Printer Tests

Before you begin, make sure the printer you wish to test is
properly configured for the computer you are using (that is,
make sure the dip switch settings are the same for both
interface and printer). **If you are using a IIe or II Plus,
note the slot in which the interface card is installed.**

NOTE: If you are using an Apple ///, you must first boot the
Apple II Emulation program, press <ESCAPE> to go into
"Options," and set the baud rate to match the printer dip
switch settings. (For the Dot Matrix Printer, select the
parallel communications option). Then insert the Peripherals
Diskette and press <RETURN> to boot.

When you select the printer tests from the main menu, seven
Apple II compatible printers are listed for you to choose
from:

1. ImageWriter
2. ImageWriter 15
3. ImageWriter II
4. Dot Matrix Printer
5. Daisy Wheel Printer
6. Scribe
7. Silentype

Enter the number of the printer you wish to test. Depending
on the computer you are using, one of the following will
occur:

Apple IIc - Slot 1 (printer port) will automatically be
assigned at 9600 baud.

Apple /// - With all serial printers, slot 5 (RS-232 port)
will automatically be assigned and the selected printer menu
will appear. When using the Apple /// to test the Dot Matrix
Printer (parallel), the interface card must be installed in
slot 4. Then slot 4 will automatically be assigned and the
DMP menu will appear.

Apple II Plus or IIe - You will be prompted to enter the
slot number where the interface is installed. If you select
the wrong slot number (without pressing <RETURN>), press <ESC>
and start over. If you type in the wrong slot number <u>and</u>
press <RETURN>, you must reboot by turning the computer off
and on (or wait while the program finishes the test sequence).

When the printer's menu screen appears, it will list the tests available for that printer. (The table at the end of this section shows the tests available for each printer.)

Enter the number of the test you want. The name of the test selected will head the printout, followed by the pattern of characters the test displays. (**NOTE:** When testing a printer with an Apple /// under Emulation mode, the printer carriage may bounce to the extreme right before beginning the test printout. Ignore this reaction.)

The printer functional test performs each of the available tests in sequence. The character set test and custom characters test run continuously until you do one of the following:

> **Press the spacebar** (for "Accept," or "Pass")
>
> **Type "X"** (for "Reject," or "Fail")
>
> **Press <ESC>** (to return to the printer menu)

The remaining tests print a number of lines (usually five) as a sample, then give you the additional option below:

> **Press <RETURN>** (to repeat test)

NOTE: After you indicate a "Pass" or "Fail" the printer menu returns automatically, except in the printer functional test, where each test prints sequentially until all are completed.

The results (Pass, Fail) you give the printer for each test are indicated on the printer menu.

The Printer Test options are as follows:

Functional Test   –   Performs a prescribed number of
                               iterations (usually five) of each
                               test available for the printer
                               being tested.

Character Set   –   Continuously prints the full set
                               of characters, with underlining.

                               This test is used to check
                               character generation.

Alternate Sets   –   Prints one each of all alternate
                               character sets available.

                               This test checks the printer's
                               interpretation of the logic board
                               commands for alternate character
                               sets.

Custom Characters   –   Continuously prints any customer-
                               designed characters.

                               This test checks the circuitry used
                               for downloading a custom character
                               and the ability of the printer to
                               print the character when called.

Graphic Images   –   Prints 5 horizontal lines – very
                               narrow to very wide. (On the DWP,
                               this test prints text and overcast
                               X's in graphic mode. On the
                               Silentype, this test produces a
                               picture.)

                               This test checks the ability of
                               the printer to interpret graphic
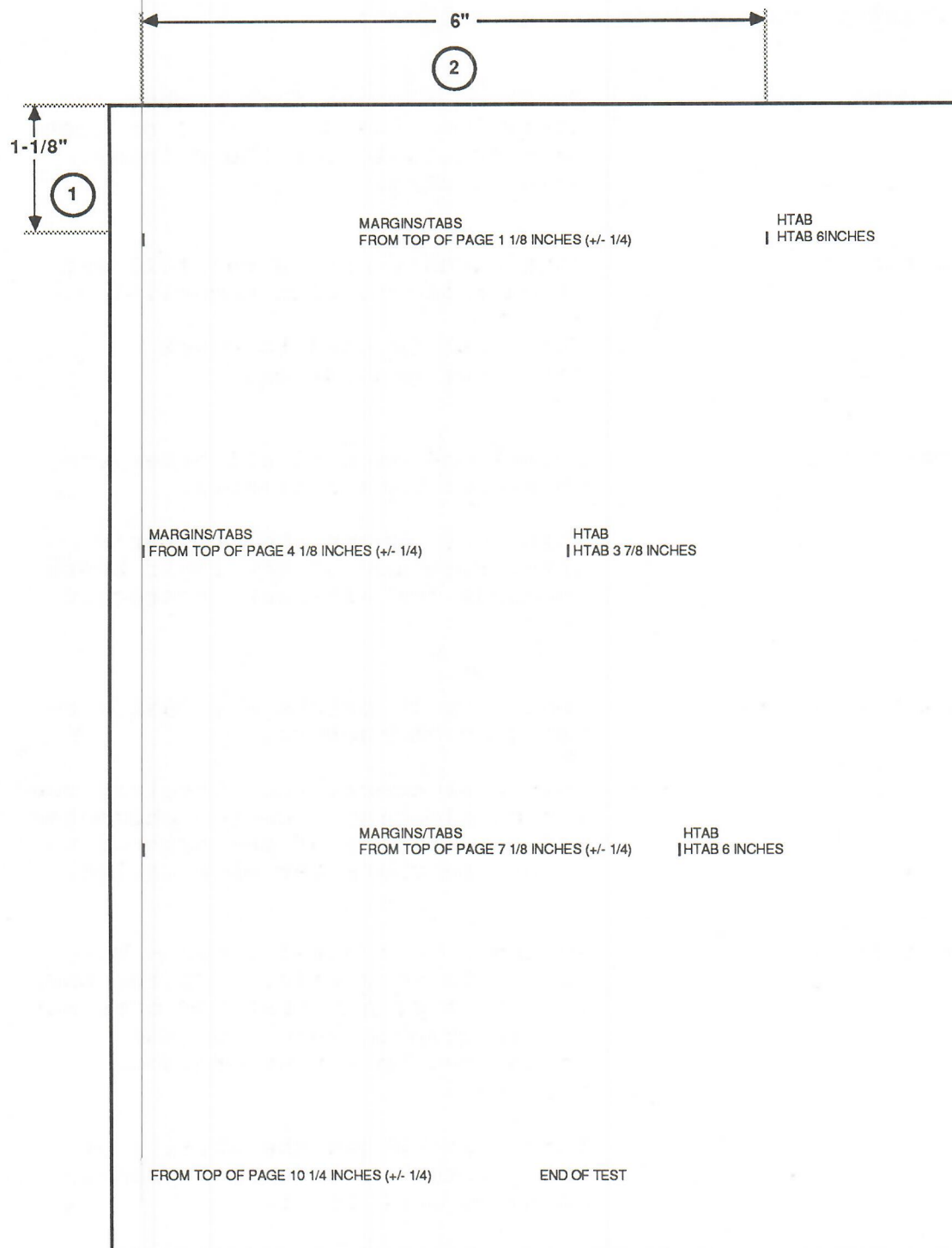   commands sent to it.

FIGURE 1

Margin/Tabs   -   Prints lines and tabs with measure-
                         ments given for verification, as
                         in the example at left (Figure 1),
                         which shows the test printout from
                         ImageWriter II.

                         Before the test begins, you are
                         given a chance to align paper in
                         the printer. Press <RETURN> when
                         you are ready to begin.

                         If paper is aligned in the printer
                         correctly, the distance from the
                         top of the page to the interspace
                         between the first two printed
                         lines (Figure 1, #1) and the dis-
                         tance between tab lines (Figure 1,
                         #2) should be as indicated on the
                         printout, give or take the accept-
                         able variance. **The measurements
                         given will vary from printer to
                         printer.**

Registration   -   Prints rows of underlined bar
                         lines (||||||||||||||||||). On
                         the Silentype, the test prints
                         rows of H's (HHHHHHHHHHHHHHHHHH).

                         This test allows you to check the
                         vertical and horizontal alignment
                         (firing hammer adjustment). Run
                         this test several times before
                         making any repairs on the printer.

Color Test   -   (ImageWriter II and Scribe only)

                        ImageWriter II - Prints five lines
                        each of the full character set in
                        the following colors: yellow,
                        purple, red, green, blue, orange,
                        and black.

                        Scribe - Prints five lines each of
                        the full character set in three
                        colors: yellow, blue, and red.

                        This test allows you to test the
                        printer's interpretation of the
                        color commands from the computer's
                        logic board and to test the
                        mechanical operation of the color
                        ribbon and the adjustment of the
                        color cam.

Print Intensity   -   (Silentype only)

                        Prints one line of each intensity
                        setting from 0 to 7.

                        This test checks the printer's
                        mechanical components and the
                        interpretation of the intensity
                        settings.

Mouse Text   -   (ImageWriter II only)

                        Prints five lines of mouse text
                        characters.

                        This test checks printer's ability
                        to interpret and print mouse text
                        characters when called.

Table of Printer Tests

Name of Test	IW	IW-15	IW-II	DMP	DWP	Scribe	Silent
Functional Test	x	x[1]	x	x	x[2]	x	x
Character Set	x	x	x	x	x	x	x
Alternate Sets	x	x	x	x	x	x	
Custom Characters	x	x	x	x			
Graphic Images	x	x	x	x	x[3]	x	x[4]
Margin/Tabs	x	x	x	x	x[5]	x	
Registration	x	x	x	x	x	x	x
Color Test			x			x[6]	
Print Intensity							x
Mouse Text			x				

NOTES

1. The tests of the ImageWriter 15 print to 15 inches.

2. Use a Courier 10-pitch daisywheel for the DWP tests.

3. On the Daisy Wheel Printer, the Graphic Image is composed of text and a line of overcast X's done in graphics mode.

5. On the Silentype, the Graphic Image is a picture.

6. On the Scribe, you will be prompted to insert the color ribbon just before the color test, and instructed to remove it and replace the black ribbon after the color test is completed.